DEPARTMENT OF COMMERCE
INFORMATION TECHNOLOGY ARCHITECTURE ELEMENTS GUIDANCE LIST

Preface

The purpose of this document for Department of Commerce (DoC) offices is to provide guidance on the elements that may be included the development and implementation of an Information Technology (IT) Architecture. This document is intended to be used with and to supplement two other DoC IT Architecture guidance documents: ***"IT Architecture: What Is It, Why Should You Care, and How Do You Do One,"*** and***"Evaluation Criteria for Having Met the Department of Commerce Information Technology Architecture Requirements."***

The list of elements provided is extensive in order to cover all sizes and ranges of an IT Architecture's scope. Within this guidance, both large and small Operating Units as well as individual departmental offices and organizations will be able to find the right mixture of architectural elements to use to create an appropriate IT Architecture. These are not mandatory elements, but **suggested key IT Architecture elements are indicated in bold font.** Each of the "Steps" in the process identified below needs to be documented. Include security and privacy considerations throughout.

Step 1 - IT Architecture Vision, Objectives and Principles

1. **Secure organizational CEO, CFO and CIO support for the development and implementation of the IT Architecture.**

2. **Ensure that throughout the process the IT Architecture is aligned and consistent with the organizational Strategic Plan, Strategic IT Plan, Operational IT Plan, and the Department's Annual Performance Plan.**

3. **Establish the organization's IT Architecture Vision.**

4. **Clearly state and establish IT Architecture Principles for all for IT Architecture views.**

    a. Business Process including performance measures (Work and Location)
    b. Information Sets/Data Bases
    c. Applications/Software
    d. Technology (computer hardware, network and telecommunications)

5. **Define IT Requirements from present to next three to five years.**

6. **Link the IT Architecture to the IT Capital Planning process.**

Step 2 - IT Architecture Baseline Characterization

7. Develop an inventory (IT Baseline) of existing Information Sets, Databases, Applications, and Technology Infrastructure.

8. Identify the information and data flows within the Operating Unit and with constituents and collaborators.

Step 3 - Target Architecture

9. **Identify the Technology Drivers that will affect the IT Architecture within the next five years.** (Technology Drivers are change agents that cause the IT Architecture to change and represent emerging technologies offering new solutions for business needs. Examples of Technology Drivers are the Internet and Web-based communications and transactions technologies, synchronous and asynchronous data communications, advances in local and wide area networks, and security.)

10. **Identify the Business Drivers that will affect the IT Architecture within the next five years.** (Business Drivers explain the business context in which the IT program and its underlying architecture exist. Business Drivers provide a rationale for setting priorities and selecting options and are the impetus for IT solutions. Examples of Business Drivers include the Clinger-Cohen Act, the need for public to obtain information from or to provide information via the Internet, e-government initiatives, and various activities that are redefining core Federal business needs.)

11. **Map the Business Processes to the basic work unit**. (A basic work unit describes a fundamental service or product that supports the Department's mission.) Provide representative examples of business functions/descriptions for each basic work unit.

12. Map the Information Sets to the Business Processes and the basic work unit descriptions.

13. Map the Information Sets and their corresponding data bases to the Applications and COTS Software of the Operating Unit or business unit.

14. Map the Applications and COTS Software to the Technology Infrastructure.

15. Create a Target Architecture for each of the four IT Architecture views.

16. Develop a consolidated IT Target Architecture for up to the next five years.

17. Identify the foundation technologies for the Operating Unit or business unit.

18. **Develop a Technical Reference Model and/or a Standards Profile**

19. Develop Target Architecture Network Diagrams.

Step 4 - Opportunities Identification and Gap Analysis

20. Perform a Gap Analysis.

21. **Identify all projects necessary to achieve the IT Target Architecture.**

22. Identify short-term immediate opportunities that may result in visible 'quick-win' projects.

Step 5 - Migration Options

23. Classify all projects as short (6 - 18 months), medium (18 - 36 months) and long (3 - 5 years) range.

24. Explain the objectives and expected outcomes of each project.

25. **Within each classification (short, medium and long range), prioritize all projects.**

    a. Take into consideration inter-project dependencies;
    b. Perform a cost/benefit analysis; and
    c. Consider and evaluate alternatives for each project.

26. Establish and document Data Dictionaries, Software Developmental Methodologies and Configuration Management Processes, if necessary.

27. **Write an IT Architecture Migration Plan.**

Step 6 - IT Architecture Implementation

28. **Identify an IT Architecture project leader for each IT Architecture project to be implemented.**

29. Establish roles and responsibilities for IT Architecture project implementation.

30. **Establish a project plan and milestone schedule for each project.**

Step 7 - Continuous Review and Update

31. Update IT Architecture, as necessary.

Note: *During the creation of this document, a concern was expressed by members of the DoC Enterprise IT Architecture Advisory Group that this guidance may be construed in the future by*

an auditing or approval group to mean that an IT Architecture is not complete unless all of the elements listed are accomplished. This is not what is intended by this document. The elements listed, as stated above, are representative IT Architecture actions, and each Operating Unit or Business Unit developing an IT Architecture must decide for itself which of the IT Architecture elements are appropriate for its particular organization.